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To: All North Carolina Health Care Providers
From: Megan Davies, MD, State Epidemiologist
Re: **Human infections with variant influenza viruses**

This memo is intended to provide information to North Carolina clinicians regarding recent human infections with a variant influenza A virus. Although this virus has not been identified in North Carolina, clinicians should consider this information when evaluating patients with influenza-like illness.

Summary

A CDC Health Advisory issued on August 3, 2012 reports a total of 29 human infections with variant influenza A (H3N2v) virus since July 2011, including 16 cases since July 12, 2012. This virus was first detected in humans in July 2011 and has also been isolated in swine in many US states. All 29 cases were infected with the H3N2v viruses that contain the matrix (M) gene from the influenza A 2009 H1N1 virus.

Clinical and Epidemiologic Features

- The incubation period, symptoms, and illness severity appear generally similar to seasonal flu. Most infections were mild.
- While most of the cases are thought to have been infected as a result of close contact with swine, limited human-to-human transmission of this virus was identified in some cases in 2011.

Vaccination and Immunity

- This virus is not included in the 2012–13 flu vaccine.
- Because the hemagglutinin genes of these viruses are related to human influenza A (H3N2) viruses that circulated in the 1990s, older children and adults might have limited immunity against these viruses.
- Current CDC data indicate that seasonal vaccines may provide limited protection against infection with H3N2v viruses among adults but no protection in children.
- An H3N2v vaccine candidate was prepared and trial lots of vaccine have been produced; clinical trials are planned later in 2012.

Antiviral Susceptibility

- This virus is susceptible to neuraminidase inhibitors (oseltamivir and zanamivir) and resistant to adamantanes (amantidine and rimantidine), similar to other recently-circulating strains.

Laboratory Identification

- All state public health laboratories are able to detect this virus using reverse-transcription polymerase chain reaction (RT-PCR) assays.
- Negative rapid influenza diagnostic test results do not exclude infection with H3N2v or any influenza virus. In addition, these tests cannot distinguish between influenza A virus subtypes.

- Influenza testing at the North Carolina State Laboratory of Public Health (SLPH) is primarily intended for virologic surveillance, rather than diagnostic purposes.
    - Testing at SLPH will continue to focus on a sample of patients with influenza-like illness seen at facilities participating in the Influenza-Like Illness Network (ILINet).
    - Testing at SLPH can also be considered in other situations if the local health department determines that such testing is necessary for surveillance or to determine which control measures are needed. Examples include influenza-like illness in patients with recent swine exposure, outbreaks in institutional settings, and clusters of severe or unusual respiratory illness.
    - Local health department approval is REQUIRED for testing at SLPH, with the exception of specimens submitted from ILINet providers.

Recommendations

- RT-PCR testing should be considered for patients who present with influenza-like illness prior to the start of the traditional influenza season in October.
- RT-PCR testing for influenza should be considered throughout the year for patients with influenza-like illness reporting recent swine exposure and for those who can be epidemiologically linked to confirmed cases of variant influenza.
- Encourage vaccination with the 2012–13 flu vaccine for all persons ≥6 months of age as soon as it is available.
    - Vaccination remains the best way to prevent infection with seasonal influenza.
    - Although the 2012–13 vaccine is unlikely to provide protection against H3N2v for children, it might provide some protection for adults.
- Antiviral treatment with oseltamivir or zanamivir should be considered for persons with suspected or confirmed H3N2v. Antiviral treatment is most effective when started as soon as possible after influenza illness onset.
- Please contact your local health department to report influenza-like illness in patients with recent swine exposure or any outbreaks of influenza-like illness (i.e. fever plus cough or sore throat), particularly among young children.

It is not yet clear whether H3N2v will continue to spread during the coming months. In the meantime, the NC Division of Public Health is taking steps to increase virologic surveillance. We will post updates with additional guidance if warranted on www.flu.nc.gov, along with general information and weekly surveillance reports during flu season. Additional information and guidance from CDC is available at www.cdc.gov/flu/swineflu.